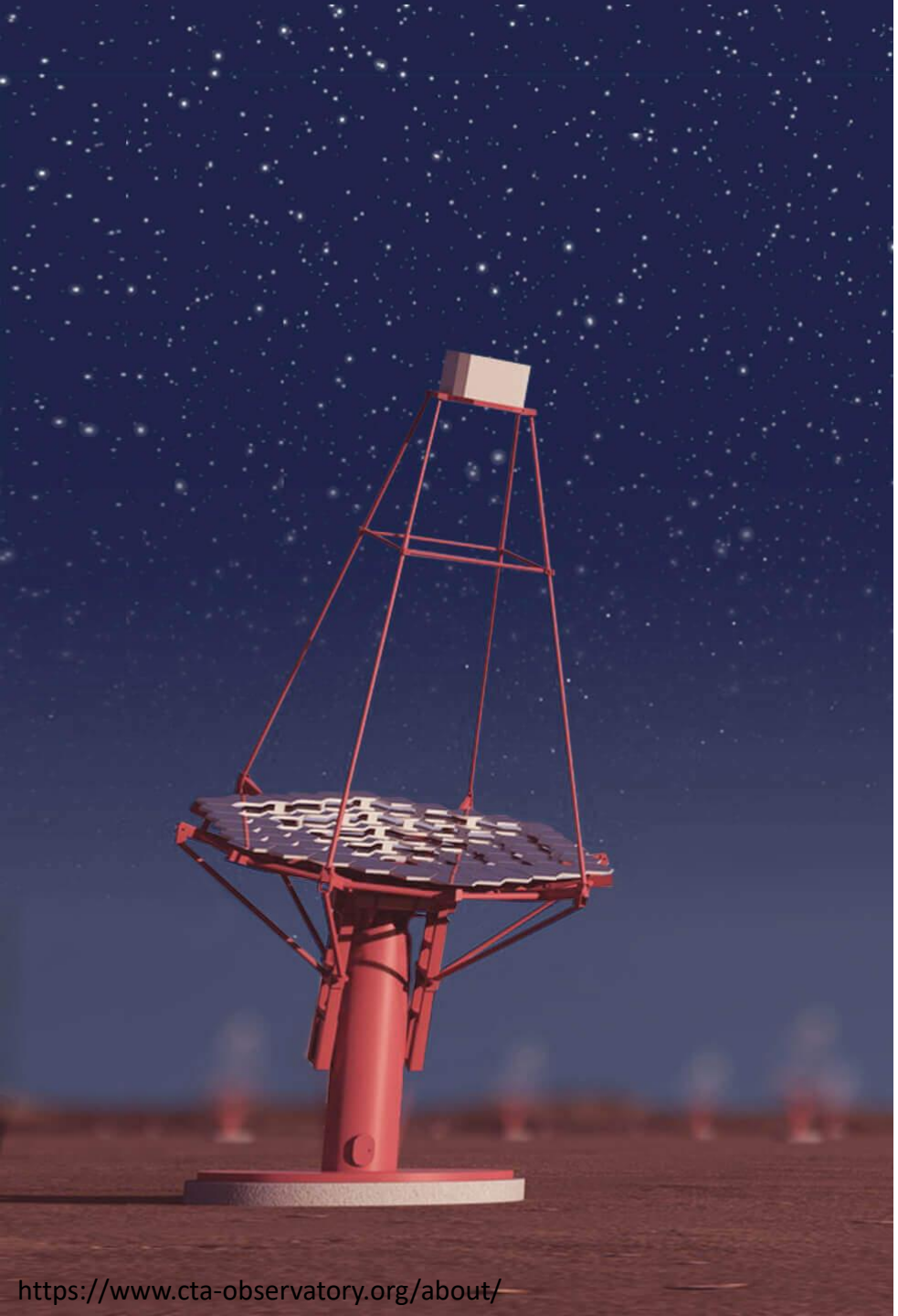
Isabella Sofia

Self introduction

Basic infos and academic career

- Torino, Piemonte
- Bachelor’s degree
  - Physics, Università degli Studi di Torino
  - «Study of the response of silicon pixel sensors for the CMS experiment upgrade» (Internship @ INFN Torino)
- Master’s degree (currently)
  - Nuclear and subnuclear physics – astroparticles curriculum
  - Erasmus traineeship at MPIK, Heidelberg (3 months)
  - Beginning of my master thesis



https://www.cta-observatory.org/about/

@ MPIK

- Gamma-Ray astronomy group
  - CTA experiment
  - Small Sized Telescopes
  - SST camera

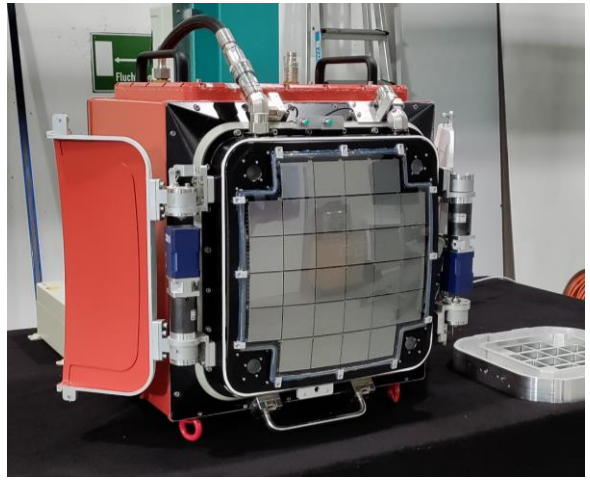
SST Camera

DARKBOX

- Night Sky Background setup (NSB), LED
- Laser, filter wheel
- Beam scan with robot arm
- Darkbox Manager

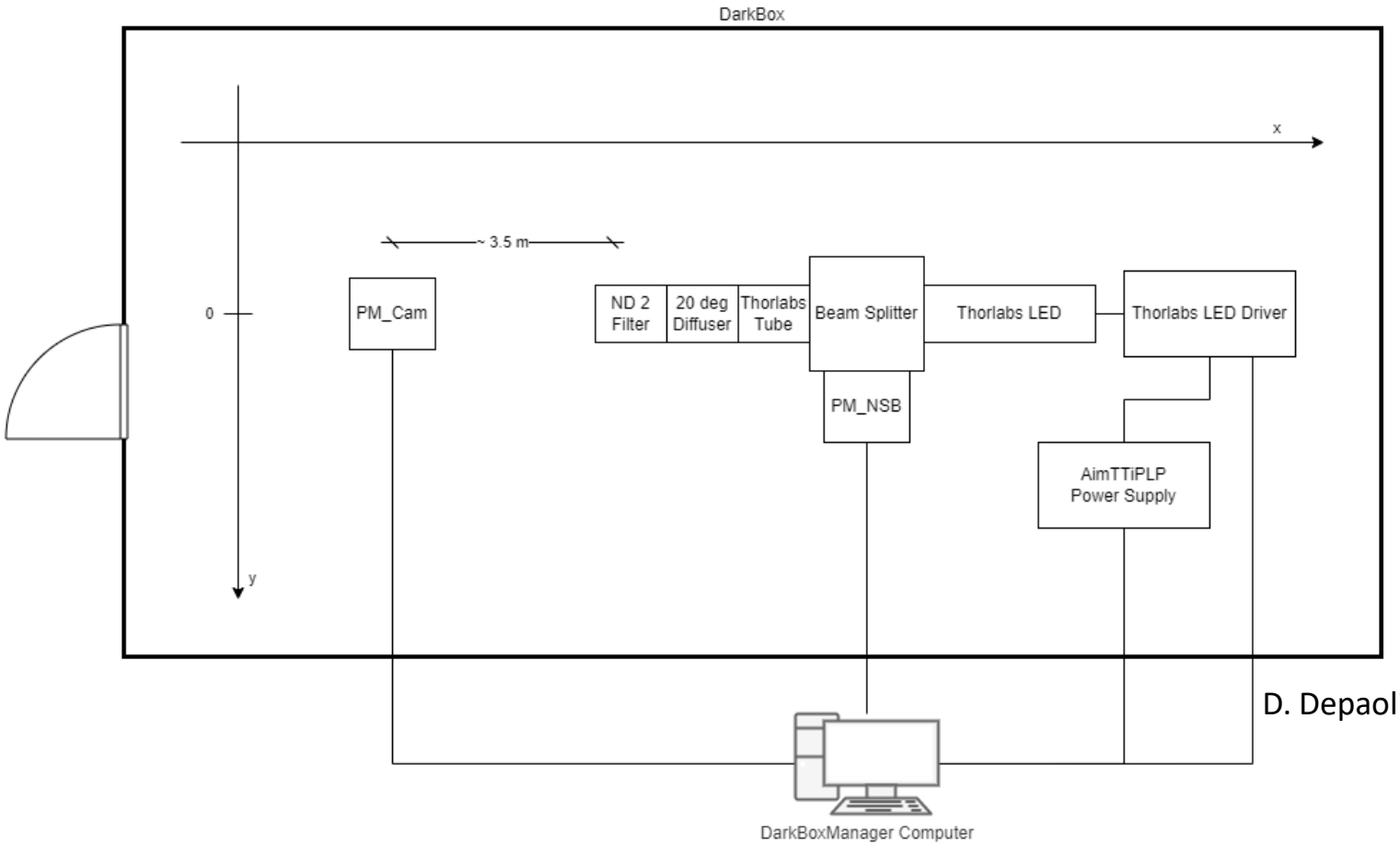
CHEC-S

- Scripts for taking data automatically
- Calibration
  - HV setting, flat fielding, dynamic range…
- Data analysis (e.g. charge extraction, trigger, timing)
- Simulation of Čerenkov signals (e.g. μ)
- Longterm tests (stability)



Darkbox
NSB

- Simulating NSB with a LED
- Measuring power both at the source and at camera position
- Obtaining the photon rate on camera SiPMs
- Cross calibration between PM_NSB and PM_CAM



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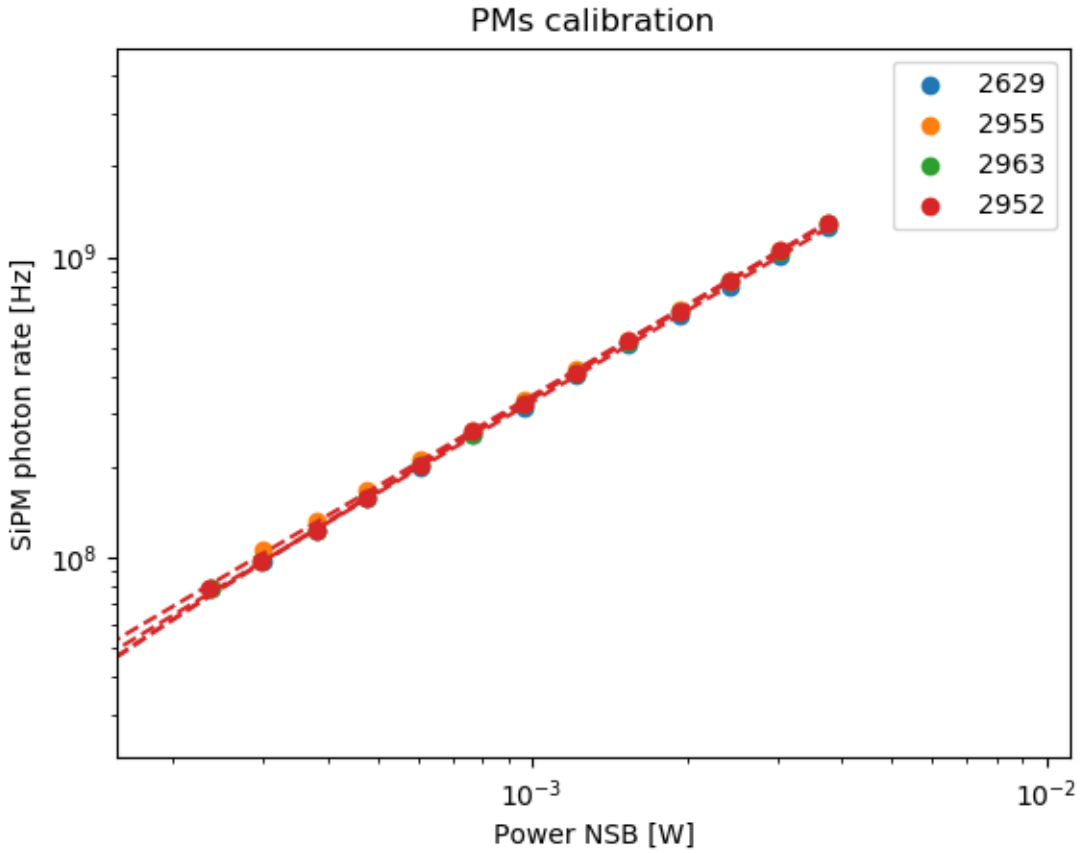
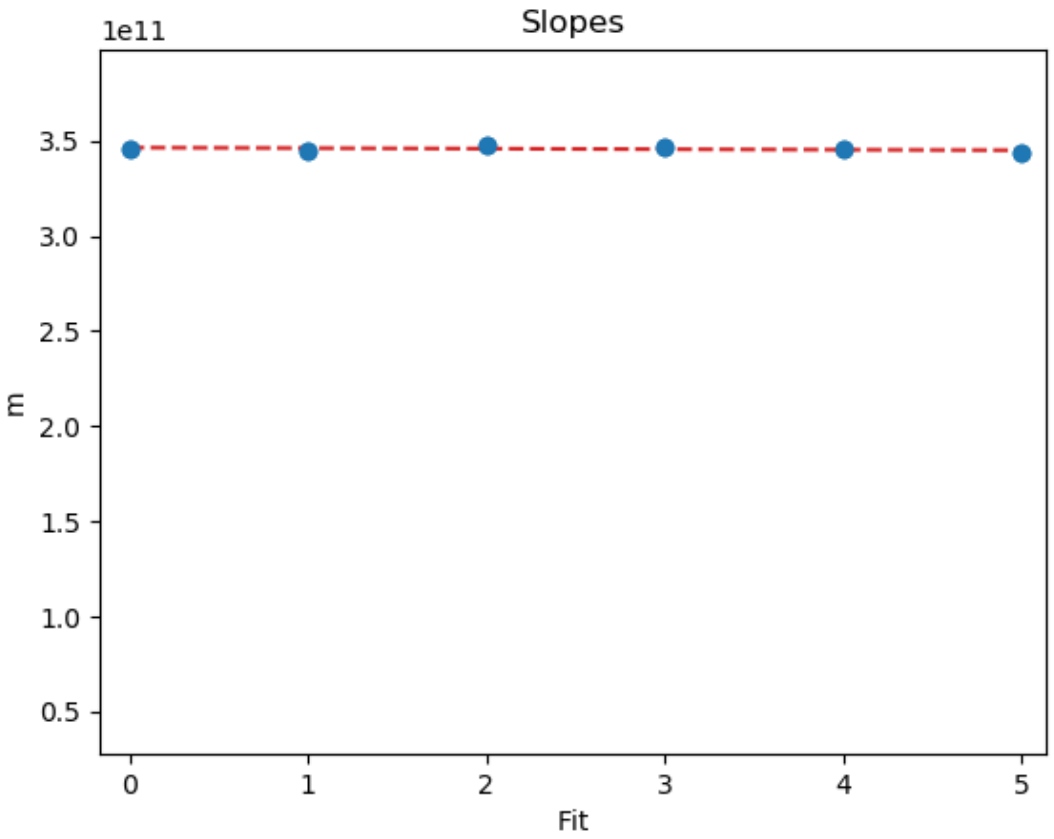
Darkbox
Set-up performance

- NSB setup
- Using 4 different powermeters for PM_CAM
- Two measurements for each PM
- Calibration fit (Photon rate VS power of NSB) for each PM



Darkbox
Set-up performance

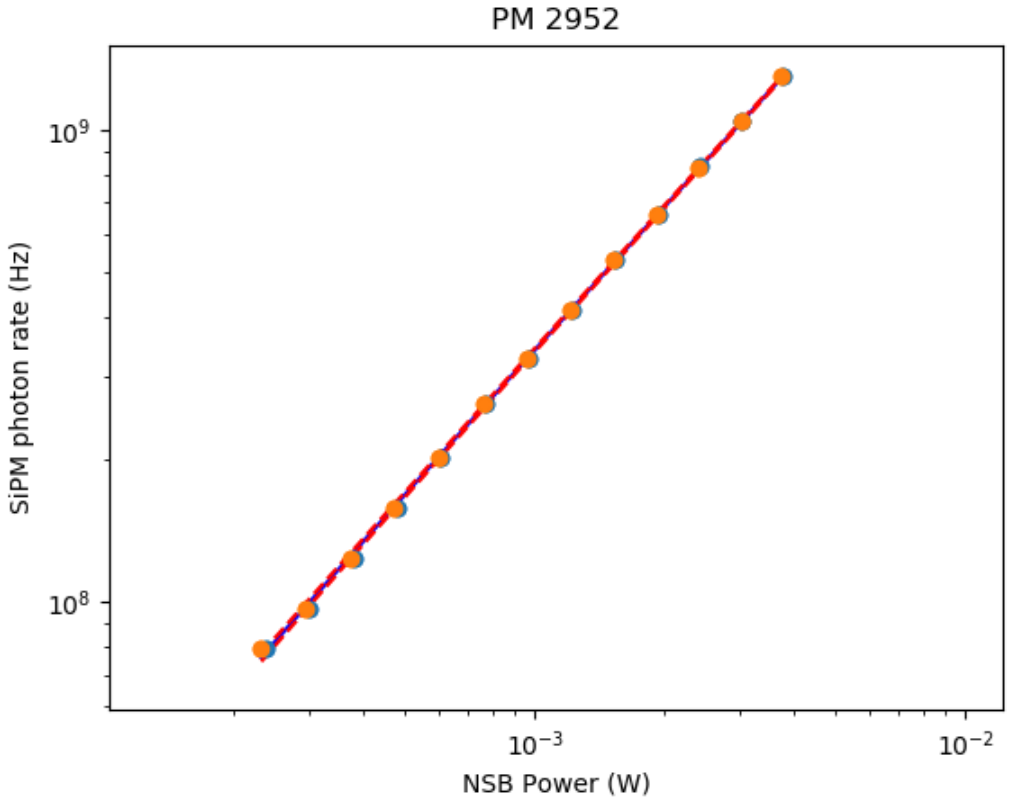
- Comparing the fit parameters
- No big difference between PMs, but removing the oldest one (out of calibration + mechanical «problem»)



Darkbox
Night Sky Background

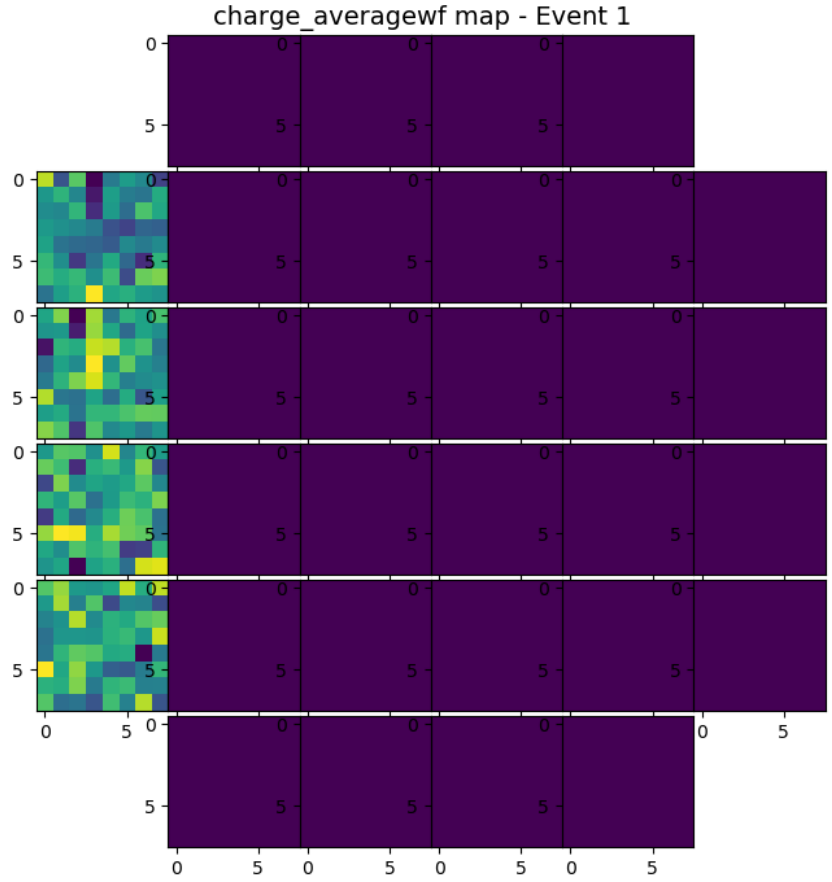
- Choosing one powermeter and its measurements
- Evaluating calibration parameters

- Minimum rate = 30 MHz
- Maximum rate = 1.2 GHz



CHEC-S
Pedestal

- One run with 4 connected modules
- Generating and applying the pedestal
- Getting some plots…



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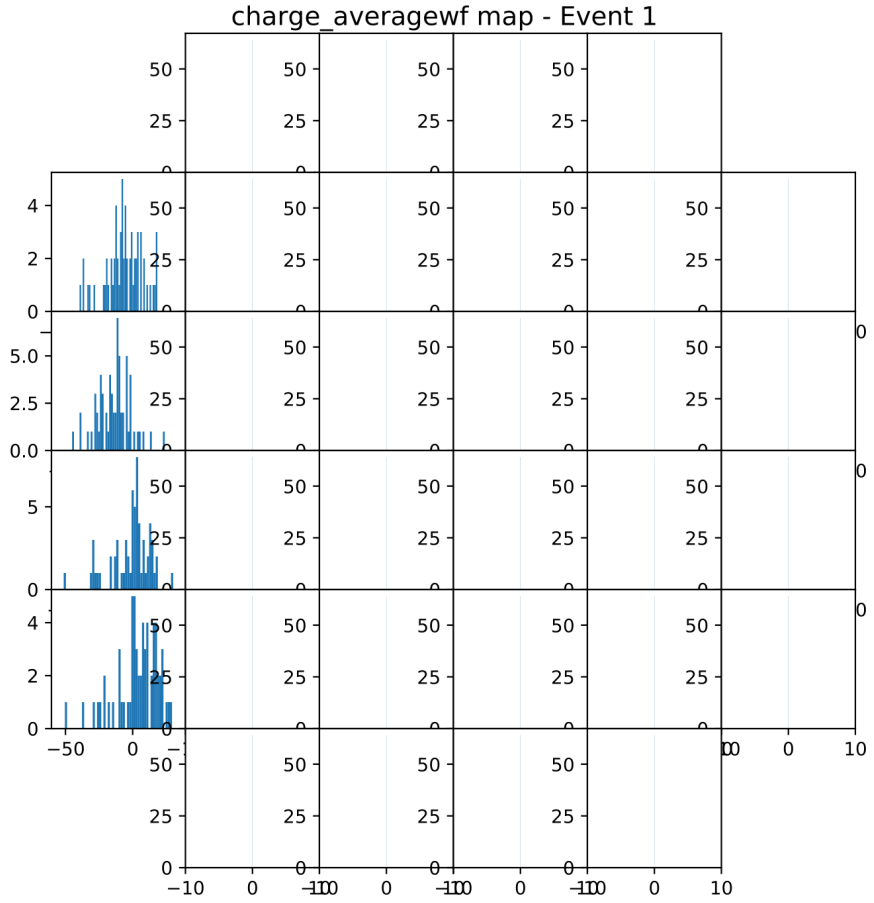

What’s next

- Darkbox
  - Laser calibration
  - 3D beam scan with robot arm

- CHEC-S
  - Moving it into the darkbox
  - Calibration
  - Data taking
  - Čerenkov images
  - Longterm tests

About me

- Hiking
- Cooking
- Wood carving (Aosta valley method)

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